SCIENCE & EDUCATION Impact
Benefits from USDA/Land-Grant Partnership

Detecting Food-borne Enemies

Increased safety practices and better detection add up to safer food.

Food-borne illnesses remain prevalent in the United States. Reports from the Centers for Disease Control and Prevention and the Food and Drug Administration indicate that the risk of food-borne illness has increased markedly over the last 20 years. Land-Grant universities and the USDA are working to reverse this trend. They are researching ways to make the world's safest food supply even safer, to develop new food safety technologies and to educate industry and consumers about food safety practices.

Payoff

- **Next stop: Germ City.** Extension educators are using a variety of methods to spread the word about not spreading germs that make us sick. **Washington State** faculty use an exhibit called Germ City and a catchy rap tune to teach kids the importance of washing up thoroughly. Before kids enter Germ City, they apply to their hands a non-toxic lotion that glows under black lights. After one trip through Germ City, kids wash their hands to see evidence of all the germs they missed. Youth now show a substantial increase in hand washing. In similar efforts to eliminate bacteria that cause illness, **Utah State** Extension educators cooked up a safe food handling and sanitation practices training campaign for 3,000 child care providers and school food service workers. As a result, Salt Lake County Hepatitis A cases dropped from 677 to 226, *Salmonella* cases dropped from 169 to 101 and *Shigella* infections dropped from 134 to 26. In Texas, **Prairie View A&M** Extension staff and volunteers educated nearly 1,000 people about food quality and safety, purchasing fresh food and preparing and storing food properly. Participants report they now wash kitchen surfaces more frequently, refrigerate foods promptly and avoid cross-contamination of appliances.

RESEARCH, EXTENSION AND EDUCATION AT WORK

- **Tackling high-dollar issues.** The National Centers for Disease Control estimate that annual costs to control food-borne illnesses range from $19 billion to $37 billion. Several Land-Grant universities have launched initiatives to tackle food safety on the farm and in the food processing industry. **Tennessee's** Food Safety Center of Excellence is a $5 million effort, concentrating on food safety problems primarily associated with animal production and sustainable agriculture. In a similar effort, **Texas A&M**, **Florida** and **California** formed a consortium that will

emphasize food safety in fruits and vegetables in a combined $4.1 million effort. These efforts will lead to a decrease in the incidence of food-borne illness, particularly among the elderly and young children.

- **Cryptowhatium?** Measures to reduce parasites in the water supply and eliminate food-borne pathogens are being examined by researchers. *Cryptosporidium parvum* is a big name for a microscopic parasite that can get into the water supply and cause serious illness. One infected animal such as a small calf can excrete millions of the parasite's eggs and taint drinking water. **Nevada** researchers found northern Nevada's weather kills 99 percent of the eggs. Learning how weather favors the parasite will help water treatment facilities step up efforts during times *C.parvum* is most likely to be present. Eliminating food-borne pathogens such as *E. coli* and *Listeria* is important to scientists in **Georgia,** who are using electrolyzed (EO) water to accomplish this in less than 30 seconds. EO water has the added advantages of on-site production with no chemical storage or handling costs. The compound has potential to replace pesticides in agricultural applications.

- **Resist that bacteria.** Researchers in **Maryland** have determined that antibiotic-resistant bacteria are prevalent in food products and are examining how resistance develops in bacteria that infect animals. This will allow researchers and producers to make more informed decisions and policy choices regarding antibiotic use. Extension workers at the Fish Disease Diagnostic Laboratory at **Kentucky State** are diagnosing diseases that can reduce growth or kill farm-raised fish. More than 300 fish health and water quality cases have been diagnosed free of charge for fish farmers over the past five years. Based on the annual average of 63 submitted fish health and water quality cases, and an estimated savings of $200 per case, fish farmers in Kentucky and surrounding states saved approximately $12,600 per year.

- **Serving safe food.** Extension faculty at **Colorado State** met the challenge of improving food safety practices through ServSafe, a food safety certification program developed by the National Restaurant Association. Eight teams trained more than 1,500 food service workers and managers. The training effort will pay off for the food industry as a safer place to eat and work. **Nebraska**, **Delaware**, **Georgia**, **West Virginia**, **Wyoming** and **Virginia** have similar programs that provide food safety education for food service professionals. Nationwide reports show that 74 percent of food service managers taking the Serving Safe Food Course earn national certification.

- **Is that your final answer?** Knowing answers to food safety issues is important for all age groups. **American Samoa Community College** staff used the creative energy of 200 schoolchildren to develop a coloring book, puzzles and slogans that teach food safety concepts. Nearly all of the children scored 80 percent or higher on a food safety quiz.

- **Control is critical.** A federally mandated food safety effort called Hazard Analysis and Critical Control Point (HACCP) is becoming the world standard for food safety. The Mid-Atlantic seafood industry relies heavily on extension expertise at the **University of Maryland – Eastern Shore** for designing food safety programs that comply with HACCP. Staff developed model HACCP plans that form the basis for blue crab HACCP plans used by the region's processors. In Oklahoma, **Langston University** Extension staff scheduled HACCP workshops for goat producers to help them understand how good management practices affect food quality and safety. Participants reported a 33 percent increase in knowledge of HACCP and related subjects. **Arizona**, **Kansas State**, **Purdue**, **Wisconsin**, **North Dakota State** and **Minnesota** also have HACCP management programs.

Cooperative State Research, Education, and Extension Service
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